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RYA Day Skipper – Chartwork - Navigation Dimensions and Conventions

TIME
24 hour clock, no decimals eg 1847 = 6.47 pm.

Standard Time is:

- Universal Time (UT) the International convention – = Greenwich Mean Time (GMT).
- May be called Z (Zulu) time by the military, and on weather charts.

Tide tables in the major almanacs are always UT. In the summer months (non-shaded areas) you must add 1 hour (0100) to the time shown to obtain British Summer Time – BST or Daylight Saving Time (DST)

- French time is in Time Zone –0100, ie 1 hour before GMT/BST
- French Standard Time = British Summer Time = UT + 1
- French Summer Time = BST + 1 = UT + 2

Local tide tables may be in local time.

DISTANCE

- 1 Nautical Mile (M) = 1 minute of arc of Latitude
  = 1852 metres
  = 2000 yards
- 1 Degree of Latitude = 60 nautical miles (M)

Always measure distances on the chart on the Latitude scale, at the side, opposite the distance required.

One tenth of a nautical mile may be referred to as a 'Cable' (ca) = 200 yards.

Depths are always in metres (m), below Chart Datum.

Heights in metres are above Mean High Water Springs (MHWS).

LATITUDE AND LONGITUDE
Measured in Degrees, minutes (60 min in a degree) and tenths of a minute,

Latitude – denotes North / South: the sides of the chart. eg Latitude 51° 55' .7 N
Longitude – denotes East / West: top and bottom of the chart. Usually longitude degrees are three figures eg 004° 35'.3
Note the Lat and Long on the chart do not start at whole numbers of degrees.

NB *Parallel* of Latitude, *Meridian* of Longitude. Greenwich is the Prime Meridian

SPEED
Measured in knots 1 kn = 1 M per hour

BEARINGS
Measured in degrees 0° to 359°. 000° is North. All bearings and lines drawn on charts are True.

T = True M = Magnetic C = Compass (see 'Variation' page)

°T ± °Var = °M ± °Dev = °C

Wind direction relates to *where it comes from* (a North Westerly wind comes from the NW). Tide direction, known as 'set', relates to *where it is going to* (a set of 270° is going to the West). Tide speed is 'drift', in knots.

Chart Plotting conventions

Always note the time and log reading by the side of a position.

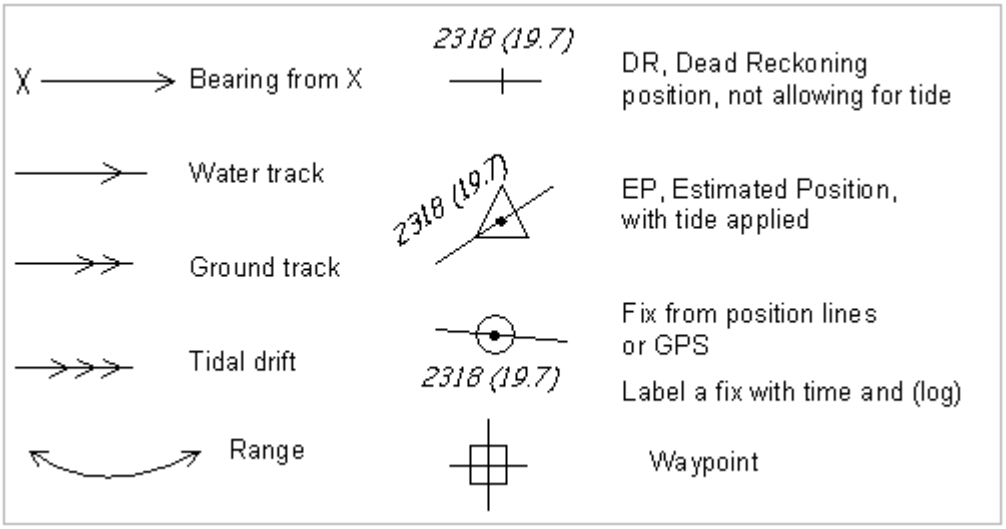

Chart projections - see http://baby.indstate.edu/gga/gga_cart/gecar200.htm and http://baby.indstate.edu/gga/gga_cart/gecart86.htm

The Mercator projection transforms the spherical earth onto a flat sheet of paper. It distorts the latitude scale towards the Poles, so land masses near the poles are grossly exaggerated in area. But it has the great advantage that lines of a constant compass bearing are straight, so a navigator can plot a course once and maintain that heading over a long distance. This is called a Rhumb Line, and it crosses all meridians of longitude at a constant angle.

A rhumb line is not the shortest course. The shortest distance between two points on the earth's surface is a Great Circle route, but this requires regular changes in the compass course. A Great Circle is a straight line on a Gnomonic Projection chart. Meridians of longitude are all Great Circles, as is any plane surface which passes through the centre of the Earth.